

Specification (Measurement)

**Transport and Main Roads
MRS32 High Modulus Asphalt (EME2)**

July 2022

Copyright

© The State of Queensland (Department of Transport and Main Roads) 2022.

Licence



This work is licensed by the State of Queensland (Department of Transport and Main Roads) under a Creative Commons Attribution (CC BY) 4.0 International licence.

CC BY licence summary statement

In essence, you are free to copy, communicate and adapt this work, as long as you attribute the work to the State of Queensland (Department of Transport and Main Roads). To view a copy of this licence, visit: <https://creativecommons.org/licenses/by/4.0/>

Translating and interpreting assistance



The Queensland Government is committed to providing accessible services to Queenslanders from all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 13 14 50 and ask them to telephone the Queensland Department of Transport and Main Roads on 13 74 68.

Disclaimer

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing.

Feedback

Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au

Contents

- 1 Introduction1**
- 2 Measurement of work1**
 - 2.1 Standard Work Items 1
 - 2.2 Work Operations 1
 - 2.3 Calculation of quantities 2
 - 2.3.1 *High modulus asphalt, EME2 mix*2
 - 2.3.2 *Grit*.....2
- 3 Utilisation of a rejected lot for a reduced level of service2**
 - 3.1 Acceptance of nonconformances 2
 - 3.2 Combined particle size distribution and binder content 3
 - 3.3 Insitu air voids 3

1 Introduction

This Specification applies to the construction of pavement layers using high modulus asphalt (EME2) complying with MRS32 *High Modulus Asphalt (EME2)*.

This Specification shall be read in conjunction with Specification MRS01 *Introduction to Specifications* and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

2 Measurement of work

2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

Standard Item No.	Description	Unit of Measurement
High Modulus Asphalt (EME2)		
42101	High modulus asphalt, EME2 mix	tonne
42102P	Supply and application of grit to the surface of high modulus asphalt (Provisional Quantity, if ordered)	tonne

2.2 Work Operations

Item 42101 High modulus asphalt, EME2 mix

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) being a suitably prequalified asphalt contractor or engaging a subcontractor who is a suitably prequalified asphalt contractor
- c) having a registered mix design or obtaining a registered mix design
- d) manufacture of the high modulus asphalt in accordance with the registered mix design(s)
- e) delivery of the high modulus asphalt to the Works
- f) laying, compacting and finishing the high modulus asphalt
- g) providing an allowance for high modulus asphalt used in temporary ramps and high modulus asphalt lost from cut-offs from joints
- h) provision of a laboratory and compliance testing facilities
- i) sampling, testing and quality assurance requirements
- j) delivery of the results for all tests and inspections to the Administrator by the nominated time, and
- k) removal and disposal of any nonconforming material or product, or any material or product not utilised for a reduced level of service, and replacement with conforming material or product.

**Item 42102P Supply and application of grit to the surface of high modulus asphalt
(Provisional Quantity, if ordered)**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) winning and processing of the material, and
- c) loading, delivery, stockpiling, hauling, spreading and rolling of the grit.

2.3 Calculation of quantities

2.3.1 High modulus asphalt, EME2 mix

The quantity of asphalt incorporated in the final work shall be mutually agreed using the tally of the weighbridge docket of the delivered asphalt less:

- a) the quantity of asphalt which does not remain in the Works (such as asphalt in temporary ramps, cut-off joints and spillages or that remaining on or in the construction plant), and
- b) any amount of asphalt which exceeds the upper vertical and horizontal geometric tolerances but is accepted to remain in the Works by the Administrator.

Weighbridge dockets must be issued at a certified weighbridge and collected at the point of delivery.

2.3.2 Grit

The quantity of grit shall be calculated based on the actual area of EME2 mix gritted and the nominated spread rate complying with the requirements of Clause 8.5 of MRS32 *High Modulus Asphalt (EME2)*.

3 Utilisation of a rejected lot for a reduced level of service

The Contractor may elect to approach the Principal, via the Administrator, with a written proposal about how rejected lots, or rejected lots not accepted for a reduced level of service, may be retained. If accepted, the relevant details about the outcome should be captured on the Transport and Main Roads asphalt warranty register.

3.1 Acceptance of nonconformances

Pre-determined acceptance criteria in the form of payment deduction(s), as provided in this Specification, will be applied to nonconformances for the following properties:

- a) particle size distribution and binder content in asphalt, and
- b) insitu air voids.

Deductions apply to the scheduled rate for the quantity of asphalt represented by the test sample (lot or sub-lot as appropriate).

The requirements of Clause 1.2 of MRS32 *High Modulus Asphalt (EME2)* still apply to asphalt accepted for utilisation at a reduced level of service under this clause.

Transport and Main Roads accepts asphalt for utilisation at a reduced level of service based on the requirements of Clause 3.1 being satisfied. However, it may not be appropriate to apply these pre-determined dispositions for specific high risk / high profile projects. Where it is determined that application of these pre-determined dispositions is not appropriate, it will be stated elsewhere in the Contract that the requirements of Clause 3.1 do not apply.

3.2 Combined particle size distribution and binder content

Deductions in accordance with Table 3.2 will be applied to accepted nonconformances in combined particle size distribution and binder content provided that:

- a) for any individual sieve size or binder content, nonconformances greater than twice the production tolerance specified in Table 7.4.3.2 of MRTS30 *Asphalt Pavements* will not be accepted, and
- b) deductions are cumulative and nonconformances will not be accepted if the combined particle size distribution and binder content deductions exceed 20%.

Table 3.2 - Deductions for particle size distribution and binder content nonconformances

Combined Particle Size Distribution Element	% by which Nonconformance exceeds Production Tolerance (Clause 7.4.3.2 of MRTS30)	Deductions (% of Lot or Sub-lot Value)
	(% by mass of total aggregate)	
Passing 19.0 mm	Each 2 or part thereof	1
Passing 13.2 mm	Each 2 or part thereof	1
Passing 9.50 mm	Each 2 or part thereof	1
Passing 6.70 mm	Each 2 or part thereof	1
Passing 4.75 mm	Each 2 or part thereof	1
Passing 2.36 mm	Each 1 or part thereof	1
Passing 1.18 mm	Each 1 or part thereof	1
Passing 0.600 mm	Each 1 or part thereof	1
Passing 0.300 mm	Each 1 or part thereof	2
Passing 0.150 mm	Each 0.5 or part thereof	2
Passing 0.075 mm	Each 0.5 or part thereof	2
Binder Content	(% by mass of total asphalt mix)	
All asphalt mix	Each 0.1 or part thereof	3

3.3 Insitu air voids

Deductions in accordance with Table 3.3 will be applied to nonconformances in excess of the upper characteristic value limit for insitu air voids (V_U), provided the nonconformance does not exceed the limit specified in Table 9.1 of MRTS32 *High Modulus Asphalt (EME2)* by more than 2.0%.

Table 3.3 – Deductions for excessive insitu air voids

Insitu Air Voids in Excess of Specified Limit V_U by (%)	Deduction (% of Lot Value)
≤ 0.5	5
0.6 - 1.0	15
1.1 - 1.5	30
1.6 - 2.0	50

